INTRODUCTION TO NARRATIVES FOR CONTINUOUS-TYPE ACCUMULATIONS

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INTRODUCTION

Continuous-type accumulations are essentially large single fields having spatial dimensions equal to those of plays. Continuous-type accumulations cannot be represented in terms of discrete, countable entities delineated by down-dip hydrocarbon-water contacts, as are conventional fields.

The identification of a continuous-type hydrocarbon accumulation is based on an enduring concept, the geologic setting of the accumulation. The definition does not incorporate the somewhat ephemeral criteria, such as special regulatory status or need for unusual engineering techniques, or arbritrary criteria, such as low API gravity or low matrix permeability ("tight"), that are sometimes associated with other types of accumulations . A tight-gas accumulation, for example, may or may not be a continuous-type accumulation.

The geologic setting typical of continuous-type accumulations is illustrated by figure 1. Common geologic characteristics of a continuous-type accumulation include occurrence downdip from water-saturated rocks, lack of obvious trap and seal, crosscutting of lithologic boundaries, large areal extent, relatively low matrix permeability, abnormal pressure (either high or low), and close association with source rocks. Aspects of hydrocarbon production common to a continuous-type accumulation include a large in-place hydrocarbon volume, low recovery factor, and a heterogeneous "hit or miss" character for production rates and ultimate recoveries of wells.

In the case of continuous-type accumulations, the distinction between undiscovered and inferred resources is somewhat blurred. The locations of continuous-type accumulations are often well known (implying inferred resources), but hydrocarbon estimates may be broadly dependent on geologic knowledge and theory (implying undiscovered resources).

OPERATIONAL ASPECTS

The information required for the assessment of continuous-type accumulations is supplied by earth scientists who are knowledgeable about the petroleum geology of the province under consideration. These regional experts (province geologists) complete a

data form for each play, which is the source of the input data required for assessment-computation programs. In those few cases in which there were seriously discordant views regarding a continuous-type play, the opinion of the province geologist has been honored.

A table of input data is provided elsewhere in this CD-ROM for each continuous-type play. Because the data from which the assessment numbers are generated are systematically organized and readily available, review and discussion of assessment results can be done on a play by play basis and can be focused on quantitative geologic parameters.

DESCRIPTION OF PLAYS

Identifying those plays that should be treated as continuous-type is difficult at the National scale. Identification of a continuous-type accumulation is based on the general setting and inferred dynamics of the accumulation, but the literature commonly focuses on more narrow geologic properties. From the standpoint of resource assessment, one is often left searching for inadvertently placed clues as to the fundamental nature of the accumulation.

The assessment of plays is likely to expand over time, as awareness of continuous-type accumulations increases. Additionally, some of the continuous-type plays defined for this assessment have so little data available at this time that a quantitative estimation is not feasible. In these cases, the concept of the play is documented by a play narrative but quantitative assessment is deferred to a later time. The assessment reported here for continuous-type accumulations derives from present-day paradigms, and so is a dynamic measure that is almost certain to change with time.

Sixty-one continuous-type plays are defined for the 1995 National Assessment, of which 47 are assessed (Table 1). Of the assessed plays, 34 are gas plays and 13 are oil plays. The predominant reservoir rock is sandstone for 32 plays (fig. 3), shale for 20 plays (fig. 4), and carbonate for nine plays (fig. 5). Although the plays are geographically diverse, none are in Alaska and none extend into State offshore waters.

Table 1. List of continuous-type plays of the 1995 National Assessment, onshore United States. Play definitions, maps, and other details are listed in the province reports.

Reg.	Prov.	Play	Assessed?	Gas/ oil	Rock Type	Play name
2	4	412	no	gas	sandstone	Willamette - Puget Sound Basin-Centered Gas
2	5	503	yes	gas	sandstone	Columbia Basin - Basin-Centered Gas
2	14	1408	no	gas?	sandstone	Deep, Overpressured Fractured Rocks of the Central Syncline
3	20	2007	yes	gas	sandstone	Tight Gas Piceance Mesaverde Williams Fork
3	20	2009	yes	oil	shale	Cretaceous Self-Sourced Fractured Shales
3	20	2010	yes	gas	sandstone	Tight Gas Piceance Mesaverde Iles
3	20	2015	yes	gas	sandstone	Tight Gas Uinta Tertiary East
3	20	2016	yes	gas	sandstone	Tight Gas Uinta Tertiary West
3	20	2018	yes	gas	sandstone	Basin Flank Uinta Mesaverde
3	20	2020	yes	gas	sandstone	Deep Synclinal Uinta Mesaverde
3	21	2103	yes	oil	shale	Fractured Interbed
3	22	2205	yes	gas	sandstone	Dakota Central Basin Gas
3	22	2208	yes	oil	shale	Mancos Fractured Shale
3	22	2209	yes	gas	sandstone	Central Basin Mesaverde Gas
3	22	2211	yes	gas	sandstone	Pictured Cliffs Gas
4	27	2703	no	oil	carbonate	Cone Calcareous Member, Marias River Shale
4	28	2804	yes	oil	shale	Bakken Shale Fracture Systems
4	28	2810	yes	gas	sandstone	Northern Great Plains Biogenic Gas, High Potential
4	28	2811	yes	gas	sandstone	Northern Great Plains Biogenic Gas, Moderate Potential (Suffield Block Analog)

4	28	2812	yes	gas	sandstone	Northern Great Plains Biogenic Gas, Low Potential

Table 1. Continued

Reg.	Prov.	Play	Assessed?	Gas/ oil	Rock Type	Play name
4	31	3110	yes	oil	shale	Bakken Fairway
4	31	3111	yes	oil	shale	Bakken Intermediate
4	31	3112	yes	oil	shale	Bakken Outlying
4	31	3113	yes	gas	carbonate	Southern Williston Basin Margin - Niobrara Shallow Biogenic
4	33	3308	no	oil	shale	Mowry Fractured Shale
4	33	3311	no	oil	shale	Niobrara Fractured Shale
4	34	3404	no	gas	sandstone	Basin-Center Gas
4	35	3505	no	gas	sandstone	Basin-Center Gas
4	37	3740	yes	gas	sandstone	Greater Green River Basin - Cloverly-Frontier
4	37	3741	yes	gas	sandstone	Greater Green River Basin - Mesaverde (Almond)
4	37	3742	yes	gas	sandstone	Greater Green River Basin - Lewis
4	37	3743	yes	gas	sandstone	Greater Green River Basin - Fox Hills-Lance
4	37	3744	yes	gas	sandstone	Greater Green River Basin - Fort Union
4	38	3803	no	oil	carbonate	Upper Cretaceous Niobrara Fractured Shale Oil
4	39	3904	yes	oil	carbonate	Greater Wattenberg Codell/Niobrara Oil and Gas
4	39	3906	yes	gas	sandstone	J Sandstone Deep Gas (Wattenberg)
4	39	3911	no	oil	shale	Fractured Shale - Pierre
4	39	3920	yes	oil	carbonate	Fractured Niobrara - Greater Silo/Dale Salt-Edge Oil

4	39	3921	yes	oil	carbonate	Fractured Niobrara - Greater Northern Denver Basin Oil

Table 1. Continued

Reg.	Prov.	Play	Assessed?	Gas/ oil	Rock Type	Play name
5	45	4503	no	oil	shale	Mississippian Barnett Shale
6	47	4747	yes	oil	carbonate	Austin Chalk-Pearsall
6	47	4748	yes	oil	carbonate	Austin Chalk-Giddings
6	47	4749	yes	oil	carbonate	Austin Chalk-Outlying
6	49	4923	yes	gas	sandstone	Cotton Valley Blanket Sandstones Gas
7	58	5811	no	gas	shale	Woodford/Chattanooga/Arkansas Novaculite of Midcontinent
8	63	6319	yes	gas	shale	Antrim Gas, Developed Area
8	63	6320	yes	gas	shale	Antrim Gas, Undeveloped Area
8	64	6407	yes	gas	shale	Illinois Basin - New Albany Shale Gas
8	66	6604	yes	gas	shale	Devonian Black Shale Gas
8	67	6728	yes	gas	sandstone	Clinton/Medina Sandstone Gas High Potential
8	67	6729	yes	gas	sandstone	Clinton/Medina Sandstone Gas Medium Potential
8	67	6730	yes	gas	sandstone	Clinton/Medina Sandstone Gas Medium-Low Potential
8	67	6731	no	gas	sandstone	Clinton/Medina Sandstone Gas Low Potential
8	67	6733	yes	gas	sandstone	Upper Devonian Sandstone Gas High Potential
8	67	6734	yes	gas	sandstone	Upper Devonian Sandstone Gas Medium Potential
8	67	6735	yes	gas	sandstone	Upper Devonian Sandstone Gas Medium-Low Potential
8	67	6736	no	gas	sandstone	Upper Devonian Sandstone Gas Low Potential
8	67	6740	yes	gas	shale	Devonian Black Shale - Greater Big Sandy

8	67	6741	yes	gas	shale	Devonian Black Shale - Greater Siltstone Content

Table 1. Continued

Reg.	Prov.	Play	Assessed?	Gas/ oil	Rock Type	Play name
8	67	6742	yes	gas	shale	Devonian Black Shale - Lower Thermal Maturity
8	67	6743	no	gas	shale	Devonian Black Shale - Undeveloped NE Ohio andWestern Pennsylvania